

Appl. No : 10/614,418
Filed : July 3, 2003

AMENDMENTS TO THE CLAIMS

The claims as listed below will replace all prior listings and presentations of claims in the above-identified application.

Please amend Claims 6 and 12, and add new Claims 20-40 as indicated below:

1. (ORIGINAL) A capacitor structure, comprising:
 - a base layer;
 - a bottom electrode formed over the base layer;
 - a BST film formed over the bottom electrode, the BST film having a substantially uniform crystal orientation; and
 - a top electrode formed over the BST filmwherein the BST film comprises between about 50 and 53.5 atomic percent titanium.
2. (ORIGINAL) The capacitor structure of Claim 1, wherein the BST film comprises between about 52 and 53 atomic percent titanium.
3. (ORIGINAL) The capacitor structure of Claim 1, wherein the base layer comprises polysilicon.
4. (ORIGINAL) The capacitor structure of Claim 1, wherein the bottom electrode is selected from the group of materials consisting of Pt, Ru, Ir, IrO_x, RuO_x Pt-Rh, Mo and Pd.
5. (ORIGINAL) The capacitor structure of Claim 1, wherein the top electrode is selected from the group of materials consisting of Pt, Ru, Ir, IrO_x, RuO_x Pt-Rh, Mo and Pd.
6. (CURRENTLY AMENDED) A capacitor structure, comprising:
 - a base layer;
 - a first nucleation layer formed over the base layer and selected to induce a substantially uniform crystal orientation in subsequent layers formed thereon;
 - a bottom electrode formed over the nucleation layer;
 - a second nucleation layer formed over the bottom electrode;
 - a BST film formed over the second nucleation layer, the BST film having a substantially uniform crystal orientation; and
 - a top electrode formed over the BST film.

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7. (ORIGINAL) The capacitor structure of Claim 6, wherein the first nucleation layer is made of NiO.

8. (ORIGINAL) The capacitor structure of Claim 6, wherein the bottom electrode is made of platinum.

9. (ORIGINAL) The capacitor structure of Claim 6, wherein the second nucleation layer is made of a material selected from the group consisting of Ti, Nb, and Mn.

10. (ORIGINAL) The capacitor structure of Claim 6, wherein the top electrode is selected from the group of materials consisting of Pt, Ru, Ir, IrO_x, RuO_x, Pt-Rh, Mo and Pd.

11. (ORIGINAL) The capacitor structure of Claim 6, wherein the BST film comprises about 52-53 atomic percent titanium.

12. (CURRENTLY AMENDED) A capacitor structure, comprising:

a base layer;

a bottom electrode formed over the base layer;

a first nucleation layer ~~made~~ consisting essentially of a metal formed over the bottom electrode;

a BST film formed over the first nucleation layer, the BST film having a substantially uniform crystal orientation; and

a top electrode formed over the BST film.

13. (ORIGINAL) The capacitor structure of Claim 12, wherein the first nucleation layer is a material selected from the group consisting of Ti, Nb and Mn

14. (ORIGINAL) The capacitor structure of Claim 12, wherein the BST film comprises between about 50 and 53.5 atomic percent titanium.

15. (ORIGINAL) The capacitor structure of Claim 12, further comprising a second nucleation layer between the base layer and the bottom electrode.

16. (ORIGINAL) The capacitor structure of Claim 15, wherein the second nucleation layer is made of NiO.

17. (ORIGINAL) The capacitor structure of Claim 12, wherein the base layer comprises polysilicon.

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18. (ORIGINAL) The capacitor structure of Claim 12, wherein the bottom electrode is selected from the group of materials consisting of Pt, Ru, Ir, IrO_x, RuO_x Pt-Rh, Mo and Pd.

19. (ORIGINAL) The capacitor structure of Claim 12, wherein the top electrode is selected from the group of materials consisting of Pt, Ru, Ir, IrO_x, RuO_x Pt-Rh, Mo and Pd.

20. (NEW) A capacitor structure, comprising:

a base layer;

a first nucleation layer made of NiO formed over the base layer ;

a bottom electrode formed over the nucleation layer;

a second nucleation layer formed over the bottom electrode;

a BST film formed over the second nucleation layer, the BST film having a substantially uniform crystal orientation; and

a top electrode formed over the BST film.

21. (NEW) The capacitor structure of Claim 20, wherein the bottom electrode is made of platinum.

22. (NEW) The capacitor structure of Claim 20, wherein the second nucleation layer is made of a material selected from the group consisting of Ti, Nb, and Mn.

23. (NEW) The capacitor structure of Claim 20, wherein the bottom and top electrodes are selected from the group of materials consisting of Pt, Ru, Ir, IrO_x, RuO_x Pt-Rh, Mo and Pd.

24. (NEW) The capacitor structure of Claim 20, wherein the BST film comprises about 52-53 atomic percent titanium.

25. (NEW) A capacitor structure, comprising:

a base layer;

a bottom electrode formed over the base layer;

a first nucleation layer made of a metal formed over the bottom electrode, the first nucleation layer being a material selected from the group consisting of Ti, Nb and Mn;

a BST film formed over the first nucleation layer, the BST film having a substantially uniform crystal orientation; and

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a top electrode formed over the BST film.

26. (NEW) The capacitor structure of Claim 25, wherein the BST film comprises between about 50 and 53.5 atomic percent titanium.

27. (NEW) The capacitor structure of Claim 25, further comprising a second nucleation layer between the base layer and the bottom electrode.

28. (NEW) The capacitor structure of Claim 27, wherein the second nucleation layer is made of NiO.

29. (NEW) The capacitor structure of Claim 25, wherein the base layer comprises polysilicon.

30. (NEW) The capacitor structure of Claim 25, wherein the bottom and top electrodes are selected from the group of materials consisting of Pt, Ru, Ir, IrO_x, RuO_x Pt-Rh, Mo and Pd.

31. (NEW) A capacitor structure, comprising:
a base layer;
a bottom electrode formed over the base layer;
a first nucleation layer made of a metal formed over the bottom electrode;
a second nucleation layer between the base layer and the bottom electrode;
a BST film formed over the first nucleation layer, the BST film having a substantially uniform crystal orientation; and
a top electrode formed over the BST film.

32. (NEW) The capacitor structure of Claim 32, wherein the second nucleation layer is made of NiO.

33. (NEW) The capacitor structure of Claim 32, wherein the first nucleation layer is a material selected from the group consisting of Ti, Nb and Mn

34. (NEW) The capacitor structure of Claim 32, wherein the BST film comprises between about 50 and 53.5 atomic percent titanium.

35. (NEW) The capacitor structure of Claim 32, wherein the bottom and top electrodes are selected from the group of materials consisting of Pt, Ru, Ir, IrO_x, RuO_x Pt-Rh, Mo and Pd.

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36. (NEW) A capacitor structure, comprising:
a base layer;
a bottom electrode formed over the base layer;
a BST film formed over the bottom electrode, the BST film having a substantially uniform crystal orientation; and
a top electrode formed over the BST film;
wherein the BST film comprises between about 50 and 53.5 atomic percent titanium and substantially the same crystal orientation as the bottom electrode.
37. (NEW) The capacitor structure of Claim 36 wherein the BST film comprises between about 52 and 53 atomic percent titanium.
38. (NEW) The capacitor structure of Claim 36, wherein the base layer comprises polysilicon.
39. (NEW) The capacitor structure of Claim 36, wherein the bottom electrode is selected from the group of materials consisting of Pt, Ru, Ir, IrO_x, RuO_x Pt-Rh, Mo and Pd.
40. (NEW) The capacitor structure of Claim 36, wherein the top electrode is selected from the group of materials consisting of Pt, Ru, Ir, IrO_x, RuO_x Pt-Rh, Mo and Pd.